



LEGACY
HEALTH

SSL Lighting In Healthcare

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2012 DOE Solid State Lighting Market Introduction Workshop

EMANUEL Medical Center

GOOD SAMARITAN Medical Center

MERIDIAN PARK Medical Center

MOUNT HOOD Medical Center

SALMON CREEK Medical Center

THE CHILDREN'S HOSPITAL Legacy Emanuel

LEGACY MEDICAL GROUP

LEGACY LABORATORY

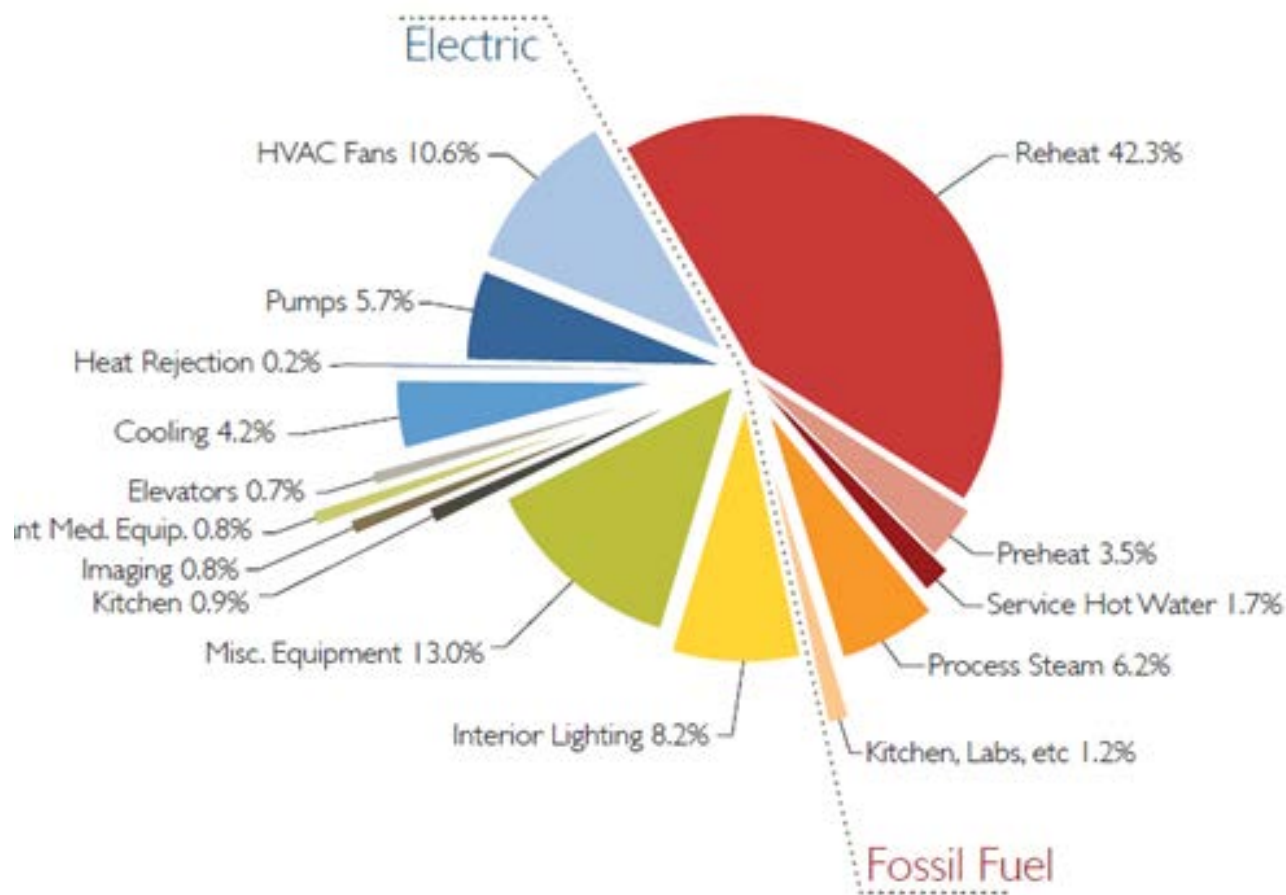
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About Legacy Health

- 5 hospital campuses serving Portland Oregon and SW Washington
- Approx. 4.1 million sq. ft. occupied space
- Buildings range in age from very old to recently built (newest - 2012)
- Building types include:
 - Hospital
 - Medical Office Buildings
 - Medical Office Buildings
 - Lab/Research
 - Administrative Offices
 - Data Center

Electrical Loads



Source: Univ. Of Washington Integrated Design Lab & SOLARC Architecture & Engineering – Targeting 100!

Lighting Applications

- Patient room
 - > Ambient, exam, wayfinding
- Patient corridor
- Nurse station
- Specialized care areas
 - > Critical care, ICU, emergency department, operating rooms, isolation rooms
- Imaging suites
 - > MRI – must be “MRI Safe”
 - Non-magnetic
 - DC powered
 - Eliminate risk of artifacts

Lighting Applications (cont'd.)

- Office
- Food services
 - > Cafeteria
 - > Food preparation areas
- Retail
 - > Gift shops
- Warehouse/distribution
 - > High bay



Unique Healthcare Considerations

- 24x7 operation
 - > Health effects
 - Circadian rhythms; patients and staff
 - AMA press release
 - May highlight the need for highly controllable lighting to minimize light levels during the night for patients and night shift workers
- Patient comfort
 - > Create a home-like environment
- Color rendition/diagnosis
- Infection control
 - > Installation planning/scheduling
- Building systems integration
- Radio frequency/electromagnetic interference



Existing Lighting Types – Types

- Incandescent
 - > Halogen MR16, PAR 30, A19
- HID
 - > Metal halide, sodium, mercury vapor
- Fluorescent
 - > Linear; T12, T8, T5
 - > U-Tube
 - > Circular
 - > Compact Fluorescent (CFL)
- SSL/LED
 - > Exit signs, MR16, can light retrofit and new construction

Experience With SSL - So Far

- Early applications – exit signs
- Where I'm seeing LED lighting show up
 - > Surgical/OR
 - > MRI rooms
 - > Downlights
 - Can light retrofits (from CFL)
 - New construction/remodel
 - > Wall wash
 - > Under shelf strip
 - > Desktop task lights



Potential Issues

- Issues encountered
 - > Haven't yet heard of qualitative issues – BUT – do see lack of standards and unclear selection criteria
- Performance/payback/efficiency
 - > Assumed to be good but without experiential data or objective selection process – who knows?
- Aesthetics
 - > Some lighting types not as readily available in full range of architectural styles
- Rapid evolution; lack of standards and knowledge (at Legacy)

What we look for in SSL/LED

- First cost is important
- Not first adopters when it's not clinical technology
 - > Wait and see
- Selection criteria
 - > Independent and credible validation of claimed performance specs.
- How we get objective qualitative data
 - > Lighting Facts
 - > CALIPER test results and reports
 - > Design Lights Consortium
 - > Energy Star

DOE Specifications

- Barriers to use
 - > Lack of awareness
 - > Time – perceived additional complexity
- Still focused on proposed fixtures from contractors (lighting designers, electrical distributors, architects, etc.)
 - > Should be more focused on application and requirements
 - > Need to implement standards but difficult to get all stakeholders to commit the time
- Not all key players are participating in DOE project teams/work groups
 - > Lighting designers, architects, distributors, etc.

Resources

- DOE/CBEA
 - > Lighting specifications documents
 - <http://www1.eere.energy.gov/buildings/alliances/technologies.html>
 - > Lighting Facts
 - <http://www.lightingfacts.com/content/products>
 - > CALiPER
 - <http://www1.eere.energy.gov/buildings/ssl/caliper/default.aspx>
- Design Lights Consortium
 - > <http://www.designlights.org/solidstate.about.php>
- Lighting and health effects
 - > <http://today.uconn.edu/blog/2012/06/ama-health-implications-of-light-at-night-serious/>



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H E A L T H

Thank you!



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